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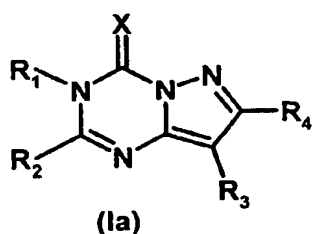
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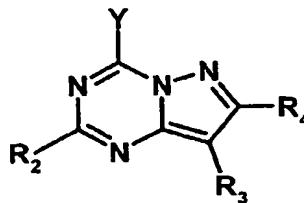
[Suite sur la page suivante]

(54) Title: NOVEL SUBSTITUTED PYRAZOLO[1,5-*a*]-1,3,5-TRIAZINE DERIVATIVES AND THEIR ANALOGUES,  
PHARMACEUTICAL COMPOSITIONS CONTAINING SAME, USE THEREOF AS MEDICINE AND METHODS FOR  
PREPARING SAME

(54) Titre : NOUVELLES PYRAZOLO[1,5-*a*]-1,3,5-TRIAZINES SUBSTITUÉES ET LEURS ANALOGIQUES, COMPOSI-  
TIONS PHARMACEUTIQUES LES CONTENANT, UTILISATION A TITRE DE MEDICAMENT ET PROCÉDES POUR LEUR  
PREPARATION



(Ia)



(Ib)

(57) Abstract: The invention concerns novel substituted pyrazolo[1,5-*a*]-1,3,5-triazine derivatives and some of their structural analogues, and their therapeutic uses, more particularly for preventing and treating pathologies involving central and/or peripheral neuronal degeneration. The invention also concerns methods for preparing same and novel synthesis intermediates. The compounds of the invention correspond more particularly to general formulac (Ia) and (Ib).

(57) Abrégé : L'invention concerne notamment de nouveaux dérivés de pyrazolo[1,5-*a*]-1,3,5-triazines ainsi que certains de leurs analogues structuraux et leurs applications dans le domaine thérapeutique tout particulièrement pour la prévention et le traitement de pathologies impliquant une dégénérescence des neurones centraux et/ou périphériques. Elle concerne également des procédés pour leur préparation et de nouveaux intermédiaires de synthèse. Les composés de l'invention répondent plus particulièrement aux formules générales (Ia) et (Ib).

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*En ce qui concerne les codes à deux lettres et autres abréviations, se référer aux "Notes explicatives relatives aux codes et abréviations" figurant au début de chaque numéro ordinaire de la Gazette du PCT.*

1/1



A

B

Grossissement : A et B x 250.

Figure 1

PCT/FR 03/02354

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 C07D487/04 C07H17/02 A61K31/53 A61K31/70 A61P25/00  
 A61P35/00 A61P31/00  
 //(C07D487/04,251:00,231:00)

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 C07D A61K A61P C07H

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, CHEM ABS Data

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 99/38868 A (DU PONT PHARM CO) 5 August 1999 (1999-08-05) cited in the application examples 3A et 6A	1,3
A	claims 1,7	1,12,15
X	WO 01/23388 A (NEUROGEN; PFIZER) 5 April 2001 (2001-04-05) examples 5C ET 6C	3
	-/--	

☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

## \* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"Z" document member of the same patent family

Date of the actual completion of the international search

8 March 2004

Date of mailing of the international search report

16. 06. 2004

Name and mailing address of the ISA

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## Renseignements relatifs aux membres de familles de brevets

Demande internationale No

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Document brevet cité au rapport de recherche		Date de publication	Membre(s) de la famille de brevet(s)	Date de publication
WO 9938868	A	05-08-1999	US 6191131 B1	20-02-2001
			US 6313124 B1	06-11-2001
			US 6060478 A	09-05-2000
			AT 264860 T	15-05-2004
			AU 748818 B2	13-06-2002
			AU 2478799 A	16-08-1999
			BR 9908206 A	05-12-2000
			CA 2314613 A1	05-08-1999
			CN 1137123 C	04-02-2004
			DE 69916578 D1	27-05-2004
			EP 1344779 A1	17-09-2003
			EP 1049699 A1	08-11-2000
			JP 2002501922 T	22-01-2002
			NZ 505079 A	29-08-2003
			NZ 524842 A	31-10-2003
			PL 342183 A1	21-05-2001
			TW 520372 B	11-02-2003
			WO 9938868 A1	05-08-1999
			US 6358950 B1	19-03-2002
			US 2003008885 A1	09-01-2003
WO 0123388	A	05-04-2001	AU 7737900 A	30-04-2001
			BG 106507 A	29-12-2002
			CA 2379633 A1	05-04-2001
			CN 1377355 T	30-10-2002
			CZ 20021089 A3	13-11-2002
			EP 1218381 A2	03-07-2002
			HU 0203131 A2	28-01-2003
			JP 2003510326 T	18-03-2003
			NO 20021357 A	23-05-2002
			PL 354982 A1	22-03-2004
			WO 0123388 A2	05-04-2001
			US 6476038 B1	05-11-2002
			ZA 200202517 A	28-03-2003
WO 0250079	A	27-06-2002	FR 2818278 A1	21-06-2002
			AU 2509602 A	01-07-2002
			CA 2432417 A1	27-06-2002
			EP 1345941 A1	24-09-2003
			WO 0250079 A1	27-06-2002
			US 2004048849 A1	11-03-2004
FR 2230366	A	20-12-1974	CH 581137 A5	29-10-1976
			AU 6925974 A	27-11-1975
			DD 113907 A5	05-07-1975
			DE 2424334 A1	19-12-1974
			FI 146174 A	23-11-1974
			FR 2230366 A1	20-12-1974
			JP 50019769 A	01-03-1975
			NL 7406641 A	26-11-1974
			BE 815405 A1	22-11-1974
			ES 426482 A1	01-09-1976
			ZA 7403316 A	28-01-1976
WO 02072202	A	19-09-2002	CA 2440553 A1	19-09-2002
			EE 200300435 A	15-12-2003
			EP 1368094 A1	10-12-2003
			HR 20030822 A2	30-04-2004

**Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)**

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☒ Claims Nos.:  
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
3. ☐ Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

**Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)**

This International Searching Authority found multiple inventions in this international application, as follows:

**see supplementary sheet**

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

3 & 4 (in part) , 12-18 (in part)

**Remark on Protest**

- ☐ The additional search fees were accompanied by the applicant's protest.  
☐ No protest accompanied the payment of additional search fees.